

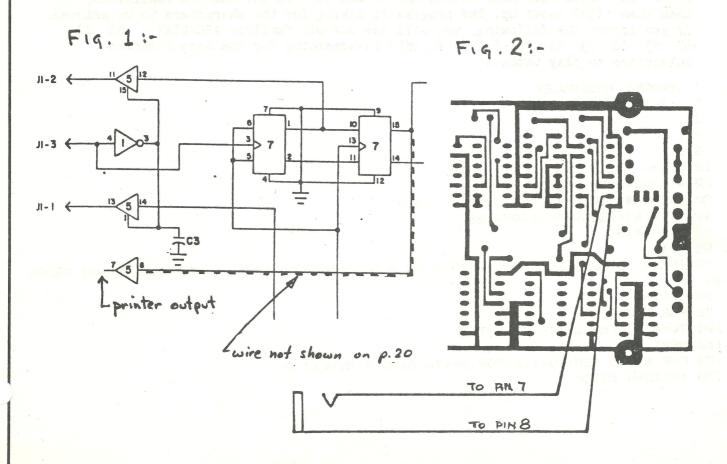
Volume TWO Number 2 December 22,1979

PROGRAM LISTINGS this issue are done (for the most part) on my new printer. The originators sent a tape which made it easy to load into the machine and try out, and then a *PRINT; LIST and zing, zing goes the printer. Last month I took my Bally and a portable TV over to the COMPRINT plant in Mountain View, and talked to one of their engineers, Larry Kelly. We soldered up a couple of wires and got them working right off the bat. We tried a couple of LIST programs and I went off to order my own unit. Here are some of the details:

Page 20 of Vol.1 has the schematic of the cassette interface, but it leaves out a bit of pertinent data which was included in the Hacker's Manual. The modified picture is shown in Fig 1 below. The missing piece of the page 20 diagram is the dotted line from pin 15 of IC 7 over to pin 6 of IC 5. There is no connection at the output pin 7 of IC 5 as constructed. This is the printer connection point.

Fig.2 is a part of the pc board shown in the Hacker's Manual, and shows exactly where the tap should be made to get the data line (pin 7) and the ground line (pin 8). The other end of the wires I soldered here went to the COMPRINT connector, to pins 3 and 7 respectively. The connector they use is an RS 232 type with 25 pins (looks like the hand controller connector, only bigger). I did have an intermediate connector using a miniature jack per the Manual suggestion.

To get the proper output from the Bally, the command *PRINT must be used instead of :PRINT as when going to tape.



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CHECKERS II is an upgraded version of the previous game by John Collins and I think we have it bug-free this time. It includes some enhancements suggested by subscribers in comments to version I, and it operates somewhat faster than before. Bill Templeton checked it out for me, and suggested the following color addition-FC=107;&(9)=17;&(0)=7;&(1)=7;&(2)=8;&(3)=8

BIORYTHM has the following preface: After inputting the requested dates, the machine will do a few internal operations and finally three numbers will appear on the screen. The older you are, the longer it takes. These numbers are factors for the desired year. You will be asked for a specific month and day - input as before. After a brief time a graph will be displayed. The vertical line corresponds to the day requested, to index the three cycles. After a long count, the computer will tell you how many days you have lived.

ATTACK This is a game of CHASE. The object is to maneuver yourself into a position where all five attackers destroy themselves by smashing into walls in the process of chasing you.

Number of walls must be entered at the start of the game.

Joystick #1 and Trigger #1 are the only controls used. The joystick changes
your position to the corresponding direction. The trigger is used to start the
game and also to hold your current position.

MANUAL ASSEMBLER is an interesting program which I do not understand. It pokes in characters and then prints them out. Start pumping in the following sequence of numbers when the program starts asking "16385= " - 255 53 \emptyset 24 76 8 64 these will call subroutine 52 and load up the initial conditions, then when 16392 shows up, the program is asking for the characters to be printed. If you insert the following, you will see our old familiar ARCADIAN - 65 82 67 65 68 73 65 78 \emptyset \emptyset \emptyset . This is something for the more advanced subscriber to play with...

```
1 . MANUAL ASSEMBLER
  2 . R.BRADDAM
  3.
  4 .
  5 .
 10 CLEAR
 20 @(0)=243;B=1
 30 PRINT #1,16384+B, "=",;INPUT ""@(B)
 40 IF @(B)(256 B=B+1;GOTO 30
 50 @(B)=118
 60 C=B
 70 INPUT "START RECORDER, WAIT 3 OR 4 SECONDS, THEN ENTER ANY NUMBER AND PRESS
GO. "W
 80 : PRINT
90 FOR B=0TO C
100 TV=@(B);FOR D=1TO 8;NEXT D
110 NEXT B
120 FOR B=CTO 128; TV=118; FOR D=1TO 8; NEXT D; NEXT B
130 : RETURN ; STOP
```

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MY MEMORY ADDITION board is going into the design phase, with delivery scheduled for early next year, but knowing how things go, probably middle of next year. To keep my cost down, I won't get all the memory slots filled in. It'll accept my Jameco 610 keyboard, and other peripherals. Subscribers who have indicated interest in this board will find an added sheet with some details. You will receive this sheet if your address label has an AO printed on it or a blue dot.

S-100 BUS INTERFACE CARD A project is being considered that would allow us to tie the Bally to all the S-100-compatible peripherals. This card would have the Bally Bus on one edge and an S-100 Bus on another edge. The card would fit into an S-100 motherboard, and would have dual input capability, so that the Bally could be either master or slave. At the moment we are developing specifications.

EPROM BURNER is another scheme being worked on. It is currently being planned to be located on the S-100 board. With this device, we will have the capability to take a program and install it into a ROM, and then the ROM can be plugged into the front cartridge slot after mounting it on a suitable pc board.

WHAT DO YOU WANT? I would like to make a serious survey of the subscribers to find out what is needed/wanted and the demand for those things to see if any efforts would be warranted. I would like to receive a list of 'things' plus an indication from you if you are able to help in writing the specifications for those 'things' we come up with. 'Things' might be ... computer/computer interaction via telephone lines...or...radio code transmitting and receiving ... or...a self diagnostic cartridge...or... a method to generate and store characters...or...???

RF CABLE PATCH BOX is offerred by Video Cassette Rentals of 1841 E. Chapman, Orange CA 92667. This box is used to connect RF cables, such as antennas or TV recorders or games together. Those of you with multiple units might find these handy to cut the tangle of cables. They offer subscribers a 10% discount.

BALLY will be in Las Vegas during the Winter CES in January. They will have a suite at the Hilton and expect to show proposed game cartridges to their distributors/dealers. To be shown are Checkers, Dogpatch, Biorythms (with Perpetual Calendar), and Chess. Industry-wide shortage of memory chips has been holding up deliveries of current games and will have some effect on the new ones. The scheduled decision on the production of the Add-On remains at late January.

RESEQUENCING ERROR has been pointed out... in part of line 20060, it should read FOR A=-24574 TO A+1796-SZ

MANUAL HOLDERS might be interested to note that pages 135 thru 143 ("Electrical Specifications for Midway Custom Chips") originated at American Microsystems, Inc., makers of the custom chips.

500 600 660

2007 800 1000

650

625

1040

400 410

60

100 200 220 240

250

230

235

260

290 300 310

320 338

b means x (multiply)	(divide)	CONTINUED ON P. SIXTEEN
C=Yb10+X FOR A=ZTO U IF C=@(A)GOTO NEXT A FOR A=ZTO 6 L=@(A); IF L<10 T=(L-1)c10; S=1 FOR B=ZTO 6 IF A=BGOTO 62E	B NEXT B COSU B IF U B IF U B IF W B	960 PRINT "YOU ZAPPED YOURSELF" 970 GOTO 1000 980 FC=82 990 PRINT "YOU ARE ZAPPED" 1000 NT=2;FOR A=1TO 15;X=FC;FC=BC;BC=X
2 .ATTACK .BY CARL MORIMOTO :RETURN CLEAR;NT=0;BC=250;FC=7 P=20;Q=10;CX=P-21;CY=Q Z=950 GOSUB 1250 NT=4;PRINT " ATTACK";NT=0		510 X=X+K;Y=Y+J 515 GOSUB 1150 520 IF X<1GOTO Z 530 IF X>10GOTO Z 540 IF Y>9GOTO Z 550 IF Y>9GOTO Z

1620 MU=B;MU=A;MU=A;MU=B;MU=B;MU=B;MU=A;MU=A;MU=F;MU=C;MU=A;MU=C;MU=C;MU=A; 1630 MU=E;MU=B;MU=B;MU=A;MU=A;NT=0;GOT0 750 MU=B; MU=B; MU=A CX=CX-6;NT=10;TU=42;NT=0 IF N=@(A+22)G0T0 J IF E=860T0 598 FOR A=1TO E NEXT 550 280 545 560

A=48; B=49; C=50; E=45; F=43

&(10)=174;NT=10

1610 800

N#T CX=Z; CY=40; TU=N; T=N; TU=95

IF TR(1)=860T0 J

<u>__</u>

528

530

540

@(E+23)=N;E=E+1 2360

R=0; D=8

```
PRINT "FOR WHAT DATE DO YOU WISH A BIO-RHYTHM?"
                                                                                                                                                                                                                                                                                                                                                                                C means ÷ (divide)
                                                                                                                                                                                                                                                                                                                                            b means x
190 PRINT "EMOTIONAL", Y
                                                  PRINT "MENTAL", Z
              IF Z<33G0T0 23Ø
                                                                                        K=334-D; RETURN
                                                                                                      K=304-D; RETURN
                                                                                                                  K=273-D; RETURN
                                                                            K=365-D; RETURN
                                                                                                                               K=243-D; RETURN
                                                                                                                                          K=212-D; RETURN
                                                                                                                                                      K=181-D; RETURN
                                                                                                                                                                   <=151-D; RETURN
                                                                                                                                                                                <=120-D; RETURN
                                                                                                                                                                                                                                                                                               INPUT "MONTH" M
                                                                                                                                                                                                                                                                                                                       GOSUB Mb10+490
                                                                                                                                                                                            <=90-D; RETURN
                                                                                                                                                                                                        <=59-D; RETURN
                                                                                                                                                                                                                    K=31-D; RETURN
                                                                                                                                                                                                                                                                                                           INPUT "DAY"D
                                                                                                                                                                                                                                                          PRINT ; PRINT
                                                                                                                                                                                                                                                                                                                                                                                                    W=120; RETURN
                                                                                                                                                                                                                                                                                                                                                                                                                W=151; RETURN
                                                                                                                                                                                                                                                                                                                                                                                                                            W=181; RETURN
                                                                                                                                                                                                                                                                                                                                                                                                                                        W=212; RETURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       W=334; RETURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                    W=243; RETURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                W=273; RETURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             W=304; RETURN
                                                                                                                                                                                                                                                                                                                                                                         W=59; RETURN
                                                                                                                                                                                                                                                                                                                                                                                       M=90; RETURN
                                                                                                                                                                                                                                                                                                                                                             W=31; RETURN
                                                                                                                                                                                                                                                                                                                                                 W=0; RETURN
                                        GOTO 200
                                                                 GOTO 4MB
                                                                                                                                                                                                                                              GOTO 188
                                                                                                                                                                                                                                                                                                                                    GOTO 628
                           Z=Z-33
                                                                                                                                                                                                                                   -- Ac4
                                                                                                                                                                                                                                                                                   PRINT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       U-M+D
                                                                                        278
                                                                                                    280
                                                    230
                                                                            260
                                                                                                                 290
                                                               240
                                                                                                                                          310
                                                                                                                               300
                                                                                                                                                                   330
                                                                                                                                                                                           350
                                                                                                                                                                                                                                 380
                                                                                                                                                                                                                                              390
                                                                                                                                                                                                                                                                                                           460
                                                                                                                                                                                340
                                                                                                                                                                                                         360
                                                                                                                                                                                                                                                          40D
                                                                                                                                                                                                                                                                                                                                                                                       530
                                                                                                                                                                                                                                                                                                                                                                                                    540
                                                                                                                                                                                                                                                                                                                                                                                                              550
                                                                                                                                                                                                                                                                                                                                    480
                                                                                                                                                                                                                                                                                                                                                 500
                                                                                                                                                                                                                                                                                                                                                              510
                                                                                                                                                                                                                                                                                                                                                                          520
                                                                                                                                                                                                                                                                                                                                                                                                                                                    280
                                                                                                                                                                                                                                                                                                                                                                                                                           560
                                                                                                                                                                                                                                                                                                                             PRINT "STAND BY FOR YOUR FACTORS TO BE COMPUTED"
                                                          CLEAR ; PRINT ; PRINT ; PRINT
                                                                                                                                                                                                                                                                           PRINT "BIO-RHYTHM FOR THE"
                                                                                                                                                                                                                                                                                                                 PRINT ; PRINT ; PRINT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRINT "PHYSICAL", X
                                                                                                                                                                                                                                                                                         *YEAR 1977 "C
                                                                                                                                                                                                                                                    "YEAR 19??"Y
                                                                                                                                                                                                                                                                                                                                                                                                                     X=A+3; Y=A+3; Z=A+3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IF Y<28G0T0 198
                                                                                                                                                                                                                                                                                                                                                                                                                                  IF X<23G0T0 15B
                                                                                                                                                                                                  "MONTH"
                                                                                                                                                                                                                                                                                                                                                                                GOSUB Mb18+28
                                                                                                                                                                                                                           "DAY"D
                                                                      FC=7;NT=0
                                                                                                                                                                                                                                                                                                                                           A=(C-Y)-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                          GOTO 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GOTO 158
                                                                                                                                                                                                                                                                                                                                                       GOTO 380
         : RETURN
                                                                                   PRINT "
                    : RETURN
                                 RETURN
                                              : RETURN
                                                                                                                                                                                                                                                                                                                                                                    A=Ab365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Y=Y-28
                                                                                                                                                                                                                                                                                                                                                                                                                                               X=X-23
                                                                                                                                                                                                  INPUT
                                                                                                                                                                                                                          INPUT
                                                                                                                                                                                                                                                   INPUT
                                                                                                                                                                                                                                                                                         INPUT
                                                                                                PRINT
                                                                                                           PRINT
                                                                                                                        PRINT
                                                                                                                                                                                                                                                                                                                                                                                             A=A+K
                                                                                                                                                PRINT
                                                                                                                                                             PRINT
                                                                                                                                                                                                                                                                CLEAR
                                                                                                                                                                                                                                                                                                     CLEAR
                                                                                                                                                                                                               CLEAR
                                                                                                                                                                                                                                       CLEAR
                                                                                                                                     PRINT
                                                                                                                                                                                                                                                                                                                                                                                                          A=A+L
                                                                                                                                                                          NT=3
                                                                                                                                                                                       NT=3
```

1979

- M.R. ANGLISS

BIORYTHMS -

D

(1)

R 16

4

N

20

021

180

150 091

40

130

DD

DI 02 603 110 20

BIO-RHYTHM, OR A DIFFERENTYEAR?" RHYTHM FOR THE YEAR OF", C INPUT "1=YES Z=PROGRAM FINISHED"T "DOES SOMEONE ELSE WANT A PRINT "DO YOU WISH ANOTHER BIO-INPUT "1=YES B=NO"T CLEAR ; PRINT ; PRINT IF T=160T0 400 IF T=160T0 19 PRINT LØ10 1030 1040 1050 1060 107B

R=U+X;S=U+Z;E=U+Y

IF R<23G0T0 67g

700

IF S<28G0T0

670

GOTO 640

R=R-23

650 660 IF E<3360T0 73B

2007

GOTO 678

S=S-28

680 690

b means x (multiply) C means + (divide)

"ATTACK" L FROM P. THIRTEEN 201140211200

BOX H, I, 5, 5, 2; NT=2; MU=H; MU=I; NT=B; RETURN S=@(A);T=(S-1)c1B;S=S-Tb1B H=P+Xb5; I=Q+Yb5; RETURN H=P+Sb5; I=Q+Tb5; RETURN 1828 NEXT A;NT=8; GOTO 178 .010 MU=44; MU=44 1100 1120 1105 1110

GOSUB 1118 1130

BOX H, I, 5, 1, 2; BOX H, I, 1, 5, 2; BOX H, I, 3, 3, 2 GOSUB 1100; CX=-60; CY=36; PRINT NT=2; MU=53; MU=49; NT=0; RETURN 1135 1150 1140

NT=2; FOR E=1T0 5; MU=80; NEXT E BOX H, I, 3, 3, 2; BOX H, I, 1, 1, 1 1160 1178

NT=0; RETURN 1180

BOX H,I,5,5,1;BOX H,I,3,3,3;BOX H,I,5,5,2;BOX H,I,3,3,3 1198

BOX H, I, 1, 1, 3; BOX H, I, 3, 3, 2; BOX H, I, 1, 1, 3 NT=2; FOR E=1TO 6; MU=42; NEXT E 1200 1210

NT=0;B0X H, I, 5, 5, 2; RETURN

BOX P, Q, 62, 62, 3; BOX P, Q, 60, 60, 3; BOX P, Q, 50, 50, 3; RETURN

1258

J=27;6=0-5;F=28-5;0=28 BOX 15, J, 125, 1, 3 BOX 0,0,1,85,3 H=Qc4; I=0; P=0 290 800 810 815

PRINT

PRINT ; PRINT

"PHYS"

PRINT

PRINT "EMOT"

FC=65;NT=0

CLEAR ; PRINT

GOTO 788

E = E - 33

710 720 730 735 740 250 260 770 780

PRINT ; PRINT PRINT "MENT" FOR T=GTO FSTEP 1 820

IF I<(Hb3)G0T0 950 IF ICHGOTO 850 830 840

BOX Tb2, Pb2+J, 1, 1, 3 P=P+1 860 850

IF J=860T0 938 NEXT T I=I+1878 890 880

IF J=-2660T0 978 900

J=0;6=0-R;F=21-R;0=21 910

J=-26; G=0-E; F=33-E; Q=33 GOTO 810 G0T0 818 938 940 920

GOTO 868 P=P-1 950 960

FOR T=1T0 9999STEP 1

NEXT T FC=B

"TODAY YOU ARE", A+U "DAYS OLD" PRINT PRINT

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NUMBER MATCH

4. NUMBER MATCH 5.BY SCOTT WALPOLE 10 CLEAR; C=0; NT=0; BC=249; FC=7 20 BOX 0,0,40,40,1 30 BOX 0,0,30,30,2 40 FOR A=1 TO 50 50 B=RND (9) 60 CX=0;CY=0;PRINT #1,B 70 FOR D=5 TO -5 STEP -1 80 G=0 90 IF &(23)=8 G=1;GOTO 200 100 IF &(22)=8 G=2;GOTO 200 110 IF &(21)=8 G=3;GOTO 200 120 IF &(23)=4 G=4;GOTO 200 130 IF &(22)=4 G=5;GOTO 200 140 IF &(21)=4 G=6;GOTO 200 150 IF &(23)=2 G=7;GOTO 200 160 IF &(22)=2 G=8;GOTO 200 170 IF &(21)=2 G=9;GOTO 200 180 IF D=-5 GOTO 220 190 NEXT D 200 IF G#B GOTO 80 220 C=C+D 250 CX=-30;CY=-32;PRINT "SCORE *",#2,C 260 IF A=50 GOTO 300 270 NEXT A 300 CLEAR: PRINT "YOUR FINAL SCORE →",#2,C

INSTRUCTIONS

The object of this game is to match the numbers one at a time as quickly as possible for the highest score. You have approx. 2 seconds to repeat the number displayed within the box using the keypad. If you press the wrong number, try for the same number again before your 2 seconds are up. If you still haven't got the right number and the 2 seconds have run out, 5 points will be deducted from your score and the computer will select a new number. Continue repeating the number until the program stops.

SHORT PROGRAMS

4.RANDOM BOX
5.BY SCOTT WALPOLE
10 CLEAR
20 FC=7;BC=0
30 BC=BC+8
40 IF &(21)=16 RUN
50 X=RND (15)×10 (Press the ERASE key to clear the screen)
60 Y=RND (8)×10
70 BOX 0,0,X,Y,3
80 GOTO 30

MUSIC PROGRAMS

4!HELLO,DOLLY!"

5.BY SCOTT WALPOLE

10 CLEAR;NT=13 (or 12)

20 PRINT "350003135600031",

30 PRINT "357×17×17×12×150000",

40 PRINT "-45-560004246-7000",

50 PRINT "4246x3x2×3x2×3x275 (1 space)",

60 PRINT "607534-450003135600031",

70 PRINT "35x2x1x2x1x2x1x2x1x2x16000",

80 PRINT "70(3 spaces)x1065035x1x1x165035",

90 PRINT "3x3x3x3x3x3x2x4x3x100"

100 IF &(23)=1 RUN (Press GO to play again)

110 GOTO 100

LYRICS

3 50003 1 3 5 60003 1 3 5 7

Hello Dolly Well Hello Dolly It's so nice

x1 7 x1 7 x1 x2 x150000-4 5

to have you back where you belong You're look
-5 6000 4 2 4 6 -70004 2 4 6

ing swell Dolly we can tell Dolly You're still

x3 x2 x3 x2 x3 x2 7 5 60

glowin' you're still crowin' you're still go-

7 5 3 4 -4 5000 3 1 3 5 in' strong We feel the room swayin' for the 6000 3 1 3 5 x2 x1 x2 x1 x2 band's playin' one of your old fav'rite songs x1 x2 x1 6000 70 x10 6 50 3 5 from way back when so take her wrap fellas x1 x1 x1 6 50 3 5 x3 x3 x3x3 Find her an emty lap fellas Dolly I'll never x3 x2x4x3x100

go away again!

4."POPEYE THE SAILOR"
5.BY SCOTT WALPOLE
10 CLEAR; NT=12
20 PRINT "355540350550",
30 PRINT "564680650550",
40 PRINT "564687656531",
50 PPINT "35556078088"
60 IF &(23)=1 RUN (Press GO to play again)
70 GOTO 60

LYRICS

3 5 5 5 40 3 50 5 50

I'm Popeve the sailor man (toot toot)

5 6 4 6 80 6 50 5 50

I live in a garbage can (toot toot)

5 6 4 6 8 7 6 5 6 5 3 1

I like to go swimmin' with bow-legged wimin (women)

3 5 5 5 60 7 80 8 8

I'm Popeve the sailor man! (toot toot)

ADS:

SELL Bally computer system complete, includes PANZER ATTACK/RED BARON, CLOWNS, BREAKOUT, FOOTBALL, STAR BATTLE, BLACKJACK, BASEBALL and 4 joysticks. Best offer about \$300. brand new.Mark Turmell, 4691 S.Elm Dr. Bay City Mich. 48706 (517) 684-9189

SELL Bally Arcade with 4 pistol grips, BASIC cart. Cassette Interface, SEAWOLF, FOOTBALL, BASEBALL, BLACKJACK, RED BARON, CLOWNS, LETTER MATCH, MATH, and 280 ZZAP. All for \$320. Russ Craven 114 W.Wrenwood Fresnoca 93704 (214) 431-3689

SELL "INVASION" on C-10 cassette with documentation \$5. George Collins 30 Sierra Ave., Piedmont CA 94611

SELL Bally Arcade complete with 4 controllers, BASIC, tape interface, and 4 game cartridges like new condition \$350. V.James, 1284 Paddington Way San Jose, CA, 95127 (408) 251-7714

SELL Bally FOOTBALL cartridge \$10. Your check will be promptly returned if cartridge sold. Check or money order to Cliff Donley 9916 Aldridge Dr. Columbia Station OH 44028

Best Wishes to all at this Holiday Season, and looking forward to an enjoyable New Year as we solve more mysteries of the Bally...

EIGHTEEN

ARCADIAN

Robert Fabris, reveler 3626 Morrie Dr. San Jose, CA 95127

FIRST